

The image shows a 4x4 grid of binary patterns. The top-left cell contains the pattern SSSS (represented by four 'S' characters). The top-right cell contains the pattern YYYY (represented by four 'Y' characters). The bottom-left cell contains the pattern SSSS (represented by four 'S' characters). The bottom-right cell contains the pattern YYYY (represented by four 'Y' characters). The other cells in the grid are empty.

FILEID**PDAT

N 1

PPPPPPPP P DDDDDDDD AAAAAAA TTTTTTTTTT
PPPPPPPP DDDDDDDD AAAAAAA TTTTTTTTTT
PP PP DD DD AA AA TT
PP PP DD DD AA AA TT
PP PP DD DD AA AA TT
PPPPPPPP DD DD AA AA TT
PPPPPPPP DD DD AA AA TT
PP DD DD AAAAAAAA TT
PP DD DD AAAAAAAA TT
PP DD DD AA AA TT
PP DD DD AA AA TT
PP DDDDDDDD AA AA TT
PP DDDDDDDD AA AA TT

....
....
....

LL I II I I SSSSSSS
LL I II I I SSSSSSS
LL SS SS SS
LLLLLLLLLL I II I I SSSSSSS
LLLLLLLLLL I II I I SSSSSSS

PDA
VO4

(1)	82	DECLARATIONS
(1)	276	STACKS FOR NULL AND SWAPPER PROCESS
(1)	293	NULL PROCESS HEADER AND PCB
(1)	306	SWAPPER PROCESS HEADER AND PCB
(1)	322	SYSTEM PCB
(1)	331	PCB ADDRESS VECTOR

0000 1 .TITLE PDAT PROCESS DATA BASE
0000 2 .IDENT 'V04-000'
0000 3 :*****
0000 4 :*****
0000 5 :*
0000 6 :* COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
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0000 23 :*
0000 24 :*
0000 25 :*****
0000 26 :*
0000 27 :++
0000 28 :FACILITY: EXECUTIVE, PROCESS DATA BASE
0000 29 :
0000 30 :ABSTRACT: PDAT ALLOCATES AND INITIALIZES THE STORAGE FOR THE
0000 31 : PROCESS DATA BASE, WHICH CONTAINS THE PCB, PHD AND STACK FOR
0000 32 : THE NULL PROCESS AND SWAPPER PROCESS.
0000 33 :
0000 34 :ENVIRONMENT:
0000 35 :
0000 36 :
0000 37 :AUTHOR: RICHARD I. HUSTVEDT , CREATION DATE: 23-NOV-76
0000 38 :
0000 39 :MODIFIED BY:
0000 40 :
0000 41 : V03-007 LJK0288 Lawrence J. Kenah 9-Aug-1984
0000 42 : The AUTHPRI field is located in both the PCB and the PHD.
0000 43 :
0000 44 : V03-006 TMK0001 Todd M. Katz 24-Aug-1983
0000 45 : Create the SWAPPER with a UIC of [1,4].
0000 46 :
0000 47 : V03-005 KFH0001 Ken Henderson 20 May 1983
0000 48 : Set PCBSV_PHDRES for NULL and SWAPPER
0000 49 :
0000 50 : V03-004 CWH1008 CW Hobbs 14-May-1983
0000 51 : Add cell SCH\$GW_LOCALNODE to hold the node bits for the
0000 52 : local cluster node.
0000 53 :
0000 54 : V03-003 ACG0319 Andrew C. Goldstein, 22-Mar-1983 21:26
0000 55 : Add resource attribute to UIC in process rights list
0000 56 :
0000 57 : V03-002 ACG0318 Andrew C. Goldstein, 8-Mar-1983 19:50

PROCESS DATA BASE

D 2

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1Page 2
(1)

0000 58 : Add initial rights lists to null and swapper PCB's
0000 59 :
0000 60 : V03-001 CWH1001 CW Hobbs 15-Feb-1983
0000 61 : Add cells for last PID created and width of PIX field of PID
0000 62 : (SCH\$GL_PIXLAST and SCH\$GL_PIXWIDTH).
0000 63 :
0000 64 : V02-005 LJK0097 Lawrence J. Kenah 3-Dec-1981
0000 65 : Initialize all priority fields in PCB and PHD for
0000 66 : both swapper and null process.
0000 67 :
0000 68 : V02-004 LJK0067 Lawrence J. Kenah 15-Sep-1981
0000 69 : Move kernel stacks for SWAPPER and NULL so that they are
0000 70 : adjacent to FCP data area. This prevents the exception and
0000 71 : bugcheck code from overwriting valuable data when the system
0000 72 : is manually crashed while the null process is executing.
0000 73 :
0000 74 : V02-003 SRB0029 Steve Beckhardt 17-Jul-1981
0000 75 : Added code to initialize lock queue header to GENPCB macro
0000 76 :
0000 77 : V02-002 KTA0024 Kerbey T. Altmann 30-Jun-1981
0000 78 : Cause SWAPPER to start up with its PCB addr in R4.
0000 79 :
0000 80 :--

```
0000  82 .SBTTL DECLARATIONS
0000  83
0000  84 : INCLUDE FILES:
0000  85 :
0000  86 :
0000  87 $ARBDEF          ; ACCESS RIGHTS BLOCK DEFINITIONS
0000  88 $DYNDEF          ; DYNAMIC DATA STRUCTURE TYPE DEFINITIONS
0000  89 $PCBDEF          ; PROCESS CONTROL BLOCK DEFINITIONS
0000  90 $PHDDEF          ; PROCESS HEADER DEFINITIONS
0000  91 $SGNDEF GLOBAL   ; DEFINE SYSGEN VALUES
0000  92 $STATEDEF        ; DEFINE STATE NUMBERS
0000  93
0000  94 :***** Temporary ARB definitions until SDL is fixed to expand
0000  95 :***** substructure names correctly.
0000  96
0000  97 ARBSR_RIGHTSLIST=32
0000  98 ARBSR_RIGHTSDESC=48
0000  99 :***** END OF TEMPORARY DEFINITIONS
0000 100
0000 101 : EXTERNAL SYMBOLS:
0000 102 :
0000 103 :
0000 104 00000003F 105 SCHSC_MAXPIX==SGN$C_NPROCS-1           ; MAXIMUM PIX
0000 106
0000 107 :
0000 108 : MACROS:
0000 109 :
0000 110 .LIST MEB
0000 111 .MACRO PHD      SYM
0000 112 .=PHD...+PHD$'SYM
0000 113 .ENDM PHD
0000 114
0000 115 .MACRO PCB      SYM
0000 116 .=PCB...+PCB$'SYM
0000 117 .ENDM PCB
0000 118
0000 119
0000 120 : MACRO TO GENERATE PCB
0000 121 :
0000 122 .MACRO GENPCB LBL,UIC=0,PHD,PRIORITY,PID,PNAME
0000 123
0000 124 .ALIGN QUAD
0000 125 PCB...=.
0000 126 LBL==.
0000 127 .BLKB PCB$C_LENGTH
0000 128 SAV...=.
0000 129 : SAVE FOR CONTINUATION
0000 130
0000 131 PCB     L_SQFL
0000 132 .LONG   :
0000 133 .LONG   :-4
0000 134
0000 135 PCB     W_SIZE
0000 136 .WORD   PCB$C_LENGTH
0000 137
0000 138 PCB     B_TYPE
```

PROCESS DATA BASE
DECLARATIONS

F 2

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1Page 4
(1)

0000	139	.BYTE	DYNSC_PCB	
0000	140	PCB	B_ASTEN	
0000	141	.BYTE	*XOF	
0000	142	PCB	L_ASTQFL	
0000	143	.LONG		
0000	144	.LONG	-4	
0000	145	PCB	L_PHYPCB	
0000	146	.LONG	PRD-*X80000000+PHDSL_PCB	; PHYSICAL PCB ADDRESS
0000	147	PCB	L_UIC	
0000	148	.LONG	UIC,1	; UIC FOR PROCESS, RESOURCE FLAG
0000	149	PCB	W_STATE	
0000	150	.WORD	SCHSC_CUR	; SET STATE TO CURRENT
0000	151	PCB	L_STS	
0000	152	.LONG	<T@PCBSV_RES>+<1@PCBSV_PSWAPM>+<1@PCBSV_PHDRES>	
0000	153	PCB		; RESIDENT, NON-SWAPPABLE, HEADER-RESIDENT
0000	154	.BYTE	B_PRIB	
0000	155	PCB	3T-PRIORITY	; BASE PRIORITY
0000	156	.BYTE	B_AUTHPRI	
0000	157	PCB	3T-PRIORITY	; INITIAL BASE PRIORITY
0000	158	.BYTE	B_PRI	
0000	159	PCB	3T-PRIORITY	; CURRENT PRIORITY
0000	160	.BYTE	B_PRIBSAV	
0000	161	PCB	3T-PRIORITY	; SAVED BASE PRIORITY
0000	162	.BYTE	B_PRISAV	
0000	163	PCB	3T-PRIORITY	; SAVED CURRENT PRIORITY
0000	164	.WORD	W_DIOLM	
0000	165	PCB	6	; ALLOW REASONABLE LIMIT
0000	166	.WORD	W_DIOCNT	
0000	167	PCB	6	; ALLOW DIO
0000	168	.LONG	L_PID	
0000	169	PCB	PID+<1@16>	; PROCESS ID
0000	170	.LONG	L_PHD	
0000	171	PCB	PRD	; PROCESS HEADER
0000	172	.LONG	Q_PRIV	
0000	173	PCB	-1,-1	; PROCESS PRIVILEGES
0000	174	.LONG		; ALL PRIVILEGES
0000	175	PCB	L_ARB	
0000	176	.LONG	ARB	; ACCESS RIGHTS BLOCK
0000	177	ARB = .		
0000	178			
0000	179			
0000	180			
0000	181			
0000	182			
0000	183			
0000	184			
0000	185			
0000	186			
0000	187			
0000	188			
0000	189			
0000	190			
0000	191			
0000	192			
0000	193			
0000	194			
0000	195			

PROCESS DATA BASE
DECLARATIONS

G 2

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1Page 5
(1)

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0000 196 PCB Q_PRIV+ARB$R_RIGHTSDESC ; LOCAL RIGHTS DESCRIPTOR
0000 197 LR = . LONG ARB$S_LOCALRIGHTS,LU
0000 198 PCB Q_PRIV+ARB$R_RIGHTSLIST ; PROCESS RIGHTS LIST
0000 199 .LONG LR ; LOCAL RIGHTS LIST
0000 200 PCB Q_PRIV+ARB$R_RIGHTSLIST ; SYSTEM RIGHTS LIST
0000 201 .LONG EXE$GQ_RIGHTSLIST
0000 202 .LONG
0000 203 PCB T_LNAME ; PROCESS NAME
0000 204 .NCHR NCHAR,<PNAME> ; COUNT FOR NAME
0000 205 .BYTE NCHAR ;
0000 206 .ASCII \PNAME\ ;
0000 207 PCB L_LOCKQFL ; LOCK QUEUE HEADER
0000 208 .LONG -
0000 209 PCB .LONG :-4
0000 210 .LONG
0000 211 .LONG
0000 212 .=SAV... ; POSITION TO END OF PCB
0000 213 .ENDM GENPCB ;
0000 214 :
0000 215 : MACRO TO GENERATE PROCESS HEADER
0000 216 : MACRO GENPHD LBL,KSP=0,PC=0,POBR=<^X80000000>,POLR=0,R4=0,PRIORITY=0
0000 217 .ALIGN QUAD
0000 218 .MACRO GENPHD LBL,KSP=0,PC=0,POBR=<^X80000000>,POLR=0,R4=0,PRIORITY=0
0000 219 .ALGN QUAD
0000 220 .BLKB PHD$C_LENGTH ; DEFINE LABEL
0000 221 .LBL= .GENPCB ; GENERATE SPACE
0000 222 SAV...= .SAVE FOR CONTINUATION
0000 223 PHD...=.INITIAL R4 CONTENTS
0000 224 LBL=.BLKB PHD$C_LENGTH ; INITIAL R4 CONTENTS
0000 225 SAV...=.INITIAL R4 CONTENTS
0000 226 PHD .LONG L_R4 ; INITIAL R4 CONTENTS
0000 227 .LONG R4
0000 228 PHD .LONG L_PC ; PROGRAM COUNTER
0000 229 .LONG PC
0000 230 PHD .LONG Q_PRIVMSK ; ALLOW EVERYTHING
0000 231 .LONG -T,-1
0000 232 PHD .LONG L_POLRSTL ; P0 LENGTH REGISTER
0000 233 .LONG POLR
0000 234 PHD .LONG L_POBR ; P0 BASE REGISTER
0000 235 .LONG POBR
0000 236 PHD .LONG L_P1BR ; P1 BASE REGISTER
0000 237 .LONG P1BR
0000 238 PHD .LONG ^X7F802000
0000 239 .LONG X7F802000
0000 240 PHD .LONG L_P1LR ; P1 LENGTH REGISTER
0000 241 .LONG P1LR
0000 242 PHD .LONG L_KSP ; KERNEL STACK POINTER
0000 243 .LONG KSP
0000 244 PHD .BYTE B_ASTLVL ; NO PENDING AST'S
0000 245 .BYTE 4
0000 246
0000 247
0000 248
0000 249
0000 250
0000 251
0000 252

```

PROCESS DATA BASE
DECLARATIONS

H 2

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1Page 6
(1)

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```
0000 253
0000 254 PHD L_FREP1VA
0000 255 .LONG ^X7FFFFE00 : FIRST AVAIL P1 VA
0000 256 : ALL FREE
0000 257 PHD W_PHVINDEX
0000 258 .WORD -T : BALANCE SLOT INDEX
0000 259 : MAKE PAGE FAULTS ILLEGAL
0000 260 PHD B_AUTHPRI
0000 261 .BYTE 3T-PRIORITY : BASE PRIORITY
0000 262
0000 263 .=SAV...
0000 264 .ENDM GENPHD :
0000 265
0000 266
0000 267 : EQUATED SYMBOLS
0000 268
00000010 0000 269 SWAP_EXT_PRIO = 16
00000010 0000 270 SYS_EXT_PRIO = 16
00000000 0000 271 NULL_EXT_PRIO = 0
00010004 0000 272 SWAP_UIC = ^X00010004
0000 273
0000 274
```

0000 276 .SBTTL STACKS FOR NULL AND SWAPPER PROCESS
0000 277 :
0000 278 :
0000 279 :
00000000 280 .PSECT \$\$S\$000_STACKS,QUAD
00000080 0000 281 .BLKL 32 : SHORT STACK FOR NULL PROCESS
00000080 0080 282 NULKSP:
000000A0 0080 284 SWPSK_KSTKSZ==160
00000300 0080 285 .BLKL SWPSK_KSTKSZ : SIZE OF SWAPPER STACK
0300 286 : LONGER STACK FOR SWAPPER
0300 287 SWPKSP:
0300 288 SWPSA_KSTK:: : EXTERNAL NAME FOR SWAPPER STACK
0300 289 :
0300 290 :
00000000 291 .PSECT \$\$S\$230,QUAD

0000 293 : .SBTTL NULL PROCESS HEADER AND PCB
 0000 294 :
 0000 295 : HEADER (PHD) FOR NULL PROCESS
 0000 296 :
 0000 297 :
 D0000017C 0000 GENPHD NULPHD,KSP=NULKSP,PC=EXESNULLPROC,PRIORITY=NULL_EXT_PRIO
 00000098 017C .BLKB PHDSC LENGTH
 00000000 0098 ;=PHD...+PHD\$E_R4
 000000C0 009C .LONG 0
 00000000 00C0 .=PHD...+PHDSL PC
 00000000 00C4 .LONG EXESNULLPROC
 00000000 00C8 .=PHD...+PHDSQ_PRIVMSK
 000000C8 00D0 .LONG -1,-1
 B0000000 00C8 .=PHD...+PHDSL_P0LRASTL
 000000D0 00CC .LONG 0
 7F802000 00D0 .=PHD...+PHDSL_P0BR
 D0200000 00D4 .LONG ^X80000000
 00000078 00D8 .=PHD...+PHDSL_P1BR
 00000080 0078 .LONG ^X7F802000
 000000CF 007C .=PHD...+PHDSB_ASTLVL
 04 00CF .BYTE 4
 00000030 00D0 .=PHD...+PHDSL_FREPIVA
 7FFFFE00 0030 .LONG ^X7FFFFEC0
 00000042 0034 .=PHD...+PHDSW_PHVINDEX
 FFFF 0042 .WORD -1
 0000010C 0044 .=PHD...+PHDSB_AUTHPRI
 1F 010C .BYTE 31-NULLE_EXT_PRIO
 0000017C 010D .=SAV...
 017C 298 :
 017C 299 :
 017C 300 : PROCESS CONTROL BLOCK FOR NULL PROCESS
 017C 301 :
 017C 302 :
 017C 303 :
 000002A0 0180 GENPCB SCHSGL_NULLPCB,PHD=NULPHD,PID=NULPIX,-
 00000180 02A0 PRIORITY=NULL_EXT_PRIO,PNAME=NULL
 00000180 0180 .ALIGN QUAD
 00000180 0184 .BLKB PCBSC_LENGTH
 0120 0188 ;=PCB...+PCBS\$E_SQFL
 0C 018A .LONG .
 0000018D 018B .LONG -4
 OF 018D .=PCB...+PCBSB_ASTEN
 00000190 018E .BYTE DYNSC-PCB
 00000190 0190 .=PCB...+PCBSL_ASTQFL
 00000190 0194 .LONG .
 80000078 0198 .LONG NULPHD-^X80000000+PHDSL_PCB : PHYSICAL PCB ADDRESS
 0000023C 019C ;=PCB...+PCBSL_UIC
 00000001 00000000 023C .LONG 0_1 : 0 FOR PROCESS, RESOURCE FLAG
 000001AC 0244 ;=PCB...+PCBSW_STATE
 000E 01AC .WORD SCHSC_CUR :
 000001A4 01AE ;=PCB...+PCBS\$E_STS
 00040011 01A4 .LONG <1@PCBSV_RES>+<1@PCBSV_PSWAPM>+<1@PCBSV_PHDRES>
 000001AF 01AB ;=PCB...+PCBSB_PRIB
 1F 01AF .BYTE 31-NULLE_EXT_PRIO : BASE NULL_EXT_PRIO

PROCESS DATA BASE
NULL PROCESS HEADER AND PCB

K 2

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1Page 9
(1)PH
V04

000001AB	01B0	.=PCB...+PCBSB_AUTHPRI	
1F	01AB	.BYTE 31-NUL[EXT_PRI0	; INITIAL BASE NULL_EXT_PRI0
0000018B	01AC	.=PCB...+PCBSB_PRI	; CURRENT NULL_EXT_PRI0
1F	018B	.BYTE 31-NUL[EXT PRI0	
000001A9	018C	.=PCB...+PCBSB_PRIBSAV	
1F	01A9	.BYTE 31-NUL[EXT PRI0	; SAVED BASE NULL_EXT_PRI0
000001A8	01AA	.=PCB...+PCBSB_PRISAV	
1F	01A8	.BYTE 31-NUL[EXT PRI0	; SAVED CURRENT NULL_EXT_PRI
000001C0	01A9	.=PCB...+PCBSW_DIOLM	
0006	01C0	.WORD 6	; ALLOW REASONABLE LIMIT
000001BE	01C2	.=PCB...+PCBSW_DIOCNT	
0006	01BF	.WORD 6	
000001E0	01C0	.=PCB...+PCBSL_PID	
00010000	01E0	.LONG NULPIX<1@16>	; PROCESS ID
000001EC	01E4	.=PCB...+PCBSL_PHD	
00000000	01EC	.LONG NULPHD	; PROCESS HEADER
00000204	01F0	.=PCB...+PCBSQ_PRIV	
FFFFFFFFFF	FF000000	.LONG -1,-1	; ALL PRIVILEGES
00000204	0204	.LONG ARB	
00000234	0210	.=PCB...+PCBSQ_PRIV+ARBSS_LOCALRIGHTS_LU	
00000040	0234	.LONG ARBSS_LOCALRIGHTS_LU	
00000224	023C	.=PCB...+PCBSQ_PRIV+ARBSS_LOCALRIGHTSLIST	
00000234	0224	.LONG LR	: LOCAL RIGHTS LIST
00000000	0228	.LONG EXESGO_RIGHTSLIST	: SYSTEM RIGHTS LIST
000001F0	022C	.=PCB...+PCBST_LNAME	
04	01F0	.BYTE NCHAR	
4C 4C 55 4E	01F1	.ASCII '\NULL\'	
00000284	01F5	.=PCB...+PCBSL_LOCKQFL	
00000284	0284	.LONG :	
00000284	0288	.LONG :-4	
000002A0	028C		
02A0		.=SAV...	; POSITION TO END OF PCB

```

02A0 306 : .SBTTL SWAPPER PROCESS HEADER AND PCB
02A0 307 : ; HEADER (PHD) FOR SWAPPER PROCESS
02A0 308 : ; GENPHD SWPPHD,KSP=SWPKSP,PC=EXESSWAPINIT,-
02A0 309 : ; POBR=0,POLR=0,R4=$CHSGL_SWPPCB,-
02A0 310 : ; PRIORITY=SWAP_EXT_PRIO
02A0 311 : ; .BLKB PHDSC LENGTH ; GENERATE SPACE
02A0 312 : ; .=PHD...+PHDSC_R4
0000041C 02A0 ; .LONG SCHSGL_SWPPCB
FFFFFFFFFF FFFFFFFF 02A0 ; .=PHD...+PHDSL_PC
00000338 041C ; .LONG EXESSWAPINIT ; PROGRAM COUNTER
00000420 0338 ; .=PHD...+PHDSQ_PRIVMSK
00000360 033C ; .LONG -1,-1
00000000 0360 ; .=PHD...+PHDSL_POLRASL
000002A0 0364 ; .LONG 0
0000036C 02A8 ; .=PHD...+PHDSL_P0BR
00000000 036C ; .LONG 0
00000368 0370 ; .=PHD...+PHDSL_P0BR
00000000 0368 ; .LONG 0
00000370 036C ; .=PHD...+PHDSL_P1BR
7F802000 0370 ; .LONG ^X7F802000
00200000 0374 ; .LONG ^X200000
00000318 0378 ; .=PHD...+PHDSL_KSP
00000300 0318 ; .LONG SWPKSP
0000036F 031C ; .=PHD...+PHDSB_ASTLVL
04 036F ; .BYTE 4
000002D0 0370 ; .=PHD...+PHDSL_FREP1VA
7FFF FE00 02D0 ; .LONG ^X7FFF FE00
000002E2 02D4 ; .=PHD...+PHDSW_PHVINDEX
FFFF 02E2 ; .WORD -1
000003AC 02E4 ; .=PHD...+PHDSB_AUTHPRI
OF 03AC ; .BYTE 31-SWAP_EXT_PRIO ; BASE SWAP EXT PRIO
0000041C 03AD ; .=SAV... ; POSITION TO END OF PHD
041C 313 : ; PROCESS CONTROL BLOCK FOR SWAPPER PROCESS
041C 314 : ; GENPCB SCHSGL_SWPPCB,PHD=SWPPHD,PID=SCHSC_SWPPIX,-
041C 315 : ; PRIORITY=SWAP_EXT_PRIO,PNAME=SWAPPER,-
041C 316 : ; UIC=SWAP_UIC
041C 317 : ; .ALIGN QUAD
041C 318 : ; .BLKB PCBSC_LENGTH
00000540 0420 ; .=PCB...+PCBSC_SQFL
00000420 0540 ; .LONG *
00000420 0420 ; .LONG -4
00000420 0424 ; .WORD PCBSC_LENGTH
0120 0428 ; .BYTE DYNSC_PCB
00000420 042A ; .=PCB...+PCBSB_ASTEN
00000420 042B ; .BYTE ^XOF
0F 042D ; .=PCB...+PCBSL_ASTQFL
00000430 042E ; .LONG *
00000430 0430 ; .LONG -4
00000430 0434 ; .LONG SWPPHD-^X80000000+PHDSL_PCB ; PHYSICAL PCB ADDRESS
80000318 0438 ; .=PCB...+PCBSL_UIC
000004DC 043C ; .LONG SWAP_UIC_1 ; SWAP_UIC FOR PROCESS, RESO
0000044C 04E4 ; .=PCB...+PCBSW_STATE
000E 044C ; .WORD SCHSC_CUR
00000444 044E ; .=PCB...+PCBSC_STS
00040011 0444 ; .LONG <1@PCBSV_RES>+<1@PCBSV_PSWAPM>+<1@PCBSV_PHDRES>

```

0000044F	0448	.=PCB...+PCBSB_PRIB	
OF	044F	.BYTE 31-SWAP_EXT_PRIO	; BASE_SWAP_EXT_PRIO
0000044B	0450	.=PCB...+PCBSB_AUTHPRI	
OF	044B	.BYTE 31-SWAP_EXT_PRIO	; INITIAL_BASE_SWAP_EXT_PRIO
0000042B	044C	.=PCB...+PCBSB_PRI	
OF	042B	.BYTE 31-SWAP_EXT_PRIO	; CURRENT_SWAP_EXT_PRIO
00000449	042C	.=PCB...+PCBSB_PRIBSAV	
OF	0449	.BYTE 31-SWAP_EXT_PRIO	; SAVED_BASE_SWAP_EXT_PRIO
00000448	044A	.=PCB...+PCBSB_PRISAV	
OF	0448	.BYTE 31-SWAP_EXT_PRIO	; SAVED_CURRENT_SWAP_EXT_PRIO
00000460	0449	.=PCB...+PCBSW_DIOLM	
0006	0460	.WORD 6	: ALLOW_REASONABLE_LIMIT
0000045E	0462	.=PCB...+PCBSW_DIOCNT	
0006	045E	.WORD 6	
00000480	0460	.=PCB...+PCBSL_PID	; PROCESS_ID
00010001	0480	.LONG SCHSC_SWPPIX+<1016>	
0000048C	0484	.=PCB...+PCBSL_PHD	; PROCESS_HEADER
000002A0	048C	.LONG SWPPHD	
000004A4	0490	.=PCB...+PCBSQ_PRIV	; ALL_PRIVILEGES
FFFFFFFFFF	04A4	.LONG -1,-1	
000004A4	04AC	.LONG ARB	
000004D4	04B0	.=PCB...+PCBSQ_PRIV+ARBSR_RIGHTSDESC	
000004DC	00000040	.LONG ARBSS_LOCALRIGHTS_LU	
000004C4	04D4	.=PCB...+PCBSQ_PRIV+ARBSR_RIGHTSLIST	
000004D4	04C4	.LONG LR	: LOCAL RIGHTS_LIST
00000000	04C8	.LONG EXESGQ_RIGHTSLIST	: SYSTEM RIGHTS_LIST
00000490	04CC	.=PCB...+PCBST_LNAME	
07	0490	.BYTE NCHAR	:
52 45 50 50 41 57 53	0491	.ASCII \SWAPPER\	:
00000524	0498	.=PCB...+PCBSL_LOCKQFL	
00000524	0524	.LONG :	
00000524	0528	.LONG :-4	
00000540	052C	.=SAV...	: POSITION_TO_END_OF_PCB
	0540	319	
00000480	0540	320 SCHSGL_SWPPID==SCHSGL_SWPPCB+PCBSL_PID	: ADDRESS_OF_SWAPPER_PID

	0540	322	.SBTTL SYSTEM PCB
	0540	323	
	0540	324	GENERATE DUMMY PCB FOR SYSTEM PAGING
	0540	325	
	0540	326	
	0540	327	
	0540	328	
00000001	0540		GENPCB MMGSAL SYSPCB,PHD=0,-
	0660		PID=0,PRIORITY=SYS_EXT_PRIO
	00000540	0660	.BLKB PCB\$C_LENGTH
	00000540	0540	.=PCB...+PCB\$C_SQFL
	00000540	0544	.LONG .
	0120	0548	.LONG .-4
	0C	054A	.WORD PCB\$C_LENGTH
	0000054D	054B	.BYTE DYN\$C_PCB
	OF	054D	.=PCB...+PCBSB_ASTEN
	00000550	054E	.BYTE ^XOF
	00000550	0550	.=PCB...+PCBSL_ASTQFL
	00000550	0554	.LONG .
	80000078	0558	.LONG .-4
	000005FC	055C	.LONG 0-X80000000+PHDSL_PCB : PHYSICAL PCB ADDRESS
	0000056C	05FC	.=PCB...+PCBSL_UIC
	0000056C	0604	.LONG 0,1 : 0 FOR PROCESS, RESOURCE FLAG
	0000E	056C	.=PCB...+PCBSW_STATE
	00000564	056E	.WORD SCHSC_CUR :
	00040011	0564	.=PCB...+PCB\$C_STS
	0000056F	0568	.LONG <1@PCBSV_RES>+<1@PCBSV_PSWAPM>+<1@PCBSV_PHDRES>
	OF	056F	.=PCB...+PCBSB_PRIB
	00000568	0570	.BYTE 31-SYS_EXT_PRIO : BASE SYS_EXT_PRIO
	OF	0568	.=PCB...+PCBSB_AUTHPRI
	0000054B	056C	.BYTE 31-SYS_EXT_PRIO : INITIAL BASE SYS_EXT_PRIO
	OF	054B	.=PCB...+PCBSB_PRI
	00000569	054C	.BYTE 31-SYS_EXT_PRIO : CURRENT SYS_EXT_PRIO
	OF	0569	.=PCB...+PCBSB_PRIBSAV
	0000056B	056A	.BYTE 31-SYS_EXT_PRIO : SAVED BASE SYS_EXT_PRIO
	OF	0568	.=PCB...+PCBSB_PRI5AV
	00000580	0569	.BYTE 31-SYS_EXT_PRIO : SAVED CURRENT SYS_EXT_PRIO
	0006	0580	.=PCB...+PCBSW_DIOCM
	0000057E	0582	.WORD 6 : ALLOW REASONABLE LIMIT
	0006	057E	.=PCB...+PCBSW_DIOCNT
	000005A0	0580	.WORD 6
	00010000	05A0	.=PCB...+PCBSL_PID
	000005AC	05A4	.LONG 0+<1@16> : PROCESS ID
	00000000	05AC	.=PCB...+PCBSL_PHD
	000005C4	05B0	.LONG 0 : PROCESS HEADER
FFFFFFFFFF	FFFFFFFFFF	05C4	.=PCB...+PCBSQ_PRIV
	000005C4	05CC	.LONG -1-1 : ALL PRIVILEGES
	000005F4	05D0	.LONG ARB
000005FC	00000040	05F4	.=PCB...+PCBSQ_PRIV+ARBSR_RIGHTSDESC
	000005E4	05FC	.LONG ARBSS LOCALRIGHTS_LU
	000005F4	05E4	.=PCB...+PCBSQ_PRIV+ARBSR_RIGHTSLIST
	00000000	05E8	.LONG LR
	000005B0	05EC	.LONG EXE\$GQ_RIGHTSLIST : LOCAL RIGHTS LIST
	00	05B0	.=PCB...+PCBST_LNAME
	00000644	05B1	.BYTE NCHAR
	00000644	0644	.=PCB...+PCBSL_LOCKQFL
	00000644	0648	.LONG .
	00000660	064C	.LONG :-4
			.=SAV...
			: POSITION TO END OF PCB

PDAT
V04-000

PROCESS DATA BASE
SYSTEM PCB

0660 329

8 3

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1

Page 13
(1)

PH
VO

0660 331 .SBTTL PCB ADDRESS VECTOR

0660 332 :
 0660 333 :
 0660 334 :
 0660 335 :
 0660 336 :
 0660 337 :
 0660 338 :
 0660 339 :
 0660 340 :
 0660 341 NULPIX=0 : PIX FOR NULL PROCESS
 00000000 0660 342 SCH\$GL_SWPPIX=1 : PIX FOR SWAPPER PROCESS

0660 343 :
 0660 344 :
 0660 345 : VECTOR OF PROCESS CONTROL BLOCK ADDRESSES
 0660 346 :
 0660 347 .ALIGN LONG : LONG WORD ALIGNMENT
 0660 348 SCH\$GL_PCBVEC:: :
 00000000 0660 349 .LONG 0 :
 0664 350 :
 0664 351 :
 0664 352 : VECTOR OF SEQUENCE NUMBERS FOR PID GENERATION
 0664 353 :
 00000000 0664 354 SCH\$GL_SEQVEC:: :
 0664 355 .LONG 0 :
 0668 356 :
 0668 357 :
 0668 358 : DATA ITEMS FOR PCBVEC REFERENCES
 0668 359 :
 00000000 0668 360 SCH\$GL_MAXPIX:: : MAXIMUM PROCESS INDEX
 0668 361 .LONG 0 :
 066C 362 SCH\$GL_PIXLAST:: :
 00000001 066C 363 .LONG SCH\$GL_SWPPIX : LAST PROCESS INDEX CREATED, USED
 0670 364 : IN ROUND ROBIN PID ALLOCATION.
 0670 365 : INIT TO SCH\$GL_SWPPIX SO FIRST SEA
 0670 366 : WILL GET SLOT AFTER SWAPPER

0670 367 :+ *** The next cell contains the width of the index field in the extended (user-visible) PID. While it is possible to find the pcb address with:
 0670 368 :*** EXTZV #0, G^SCH\$GL_PIXWIDTH, EPID, R0 ; Get index in R0
 0670 369 :*** MOVL @G^SCH\$GL_PCBVEC[R0], R0 ; R0 now has PCB addr

0670 370 :***
 0670 371 :***
 0670 372 :***
 0670 373 :*** it is much safer to do
 0670 374 :***
 0670 375 :*** MOVL EPID, R0 : Extended PID to R0
 0670 376 :*** JSB EXE\$EPID_TO_PCB : Returns PCB addr in R0

0670 377 :***
 0670 378 :***
 0670 379 :*** The format of the PID is likely to change again in future releases. Calling
 0670 380 :*** the routine offers a program much greater insurance against problems from
 0670 381 :*** future PID changes.

00000000 0670 382 SCH\$GL_PIXWIDTH:: : WIDTH OF PROCESS INDEX FIELD IN
 0670 383 .LONG 0 : THE PID, DETERMINED BY SYSGEN
 0674 384 : MAXPROCESSCNT PARAMETER

0674 385 :
 0000 0674 386 SCH\$GW_LOCALNODE:: : ID FOR LOCAL CLUSTER NODE, USED
 0674 387 .WORD 0 : FOR THE NODE FIELD IN THE EPID

PDAT
V04-000

PROCESS DATA BASE
PCB ADDRESS VECTOR

D 3

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1

Page 15
(1)

0000 0676 388
0676 389
0678 390

.WORD 0

; SPARE FOR ALIGNMENT

PHI
VO

PDAT
V04-000

PROCESS DATA BASE
PCB ADDRESS VECTOR

E 3

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1

Page 16
(1)

0678 392 .END

PHI
VO

PROCESS DATA BASE

F 3

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1Page 17
(1)PH
VO

ARB	= 000005C4	R	03
ARB\$R_RIGHTSDESC	= 00000030		
ARB\$R_RIGHTSLIST	= 00000020		
ARB\$S_LOCALRIGHTS	= 00000040		
DYN\$C_PCB	= 0000000C		
EXESG\$Q_RIGHTSLIST	***** X	X	03
EXESNUCLPROC	***** X	X	03
EXESSWAPINIT	***** X	X	03
LR	= 000005F4	R	03
LU	= 000005FC	R	03
MMGSAL_SYSPCB	= 00000540	RG	03
NCHAR	= 00000000		
NULKSP	= 00000080	R	02
NULL_EXT_PRIO	= 00000000		
NULP\$D	= 00000000	R	03
NULPIX	= 00000000		
PCB\$B_ASTEN	= 0000000D		
PCB\$B_AUTHPRI	= 0000002B		
PCB\$B_PRI	= 0000000B		
PCB\$B_PRIB	= 0000002F		
PCB\$B_PRIBSAV	= 00000029		
PCB\$B_PRISAV	= 00000028		
PCB\$B_TYPE	= 0000000A		
PCB\$C_LENGTH	= 00000120		
PCB\$L_ARB	= 0000008C		
PCB\$L_ASTQFL	= 00000010		
PCB\$L_LOCKQFL	= 00000104		
PCB\$L_PHD	= 0000006C		
PCB\$L_PHYP\$C	= 00000018		
PCB\$L_PID	= 00000060		
PCB\$L_SQFL	= 00000000		
PCB\$L_STS	= 00000024		
PCB\$L_UIC	= 000000BC		
PCB\$Q_PRIV	= 00000084		
PCB\$T_LNAME	= 00000070		
PCB\$V_PHDRES	= 00000012		
PCB\$V_PSWAPM	= 00000004		
PCB\$V_RES	= 00000000		
PCB\$W_DIOCNT	= 0000003E		
PCB\$W_DIOLM	= 00000040		
PCB\$W_SIZE	= 00000008		
PCB\$W_STATE	= 0000002C		
PCB...	= 00000540	R	03
PHD\$B_ASTLVL	= 000000CF		
PHD\$B_AUTHPRI	= 0000010C		
PHD\$C_LENGTH	= 0000017C		
PHD\$L_FREP1VA	= 00000030		
PHD\$L_KSP	= 00000078		
PHD\$L_POBR	= 000000C8		
PHD\$L_POLRASTL	= 000000CC		
PHD\$L_P1BR	= 000000D0		
PHD\$L_P1LR	= 000000D4		
PHD\$L_PC	= 000000C0		
PHD\$L_PCB	= 00000078		
PHD\$L_R4	= 00000098		
PHD\$Q_PRIVMSK	= 00000000		
PHD\$W_PHVINDEX	= 00000042		

PHD...	= 000002A0	R	03
SAV...	= 00000660	R	03
SCH\$C_CUR	= 0000000E		
SCH\$C_MAXPIX	= 0000003F	G	
SCH\$C_SWPPIX	= 00000001	G	
SCH\$GE_MAXPIX	= 00000668	RG	03
SCH\$GL_NULLPCB	= 00000180	RG	03
SCH\$GL_PCBVEC	= 00000660	RG	03
SCH\$GL_FIXLAST	= 0000066C	RG	03
SCH\$GL_PIXWIDTH	= 00000670	RG	03
SCH\$GL_SEQVEC	= 00000664	RG	03
SCH\$GL_SWPPCB	= 00000420	RG	03
SCH\$GL_SWPPID	= 00000480	RG	03
SCH\$GW_LOCALNODE	= 00000674	RG	03
SGNSC_BALSETCNT	= 00000018	G	
SGNSC_DFWSCNT	= 00000064	G	
SGNSC_DFWSQUOTA	= 00000078	G	
SGNSC_GBLSECCNT	= 00000028	G	
SGNSC_MAXGPGCNT	= 00000800	G	
SGNSC_MAXPAGCNT	= 00004000	G	
SGNSC_MAXPGFL	= 00001000	G	
SGNSC_MAXPSTCNT	= 00000005	G	
SGNSC_MAXVPGCNT	= 00002000	G	
SGNSC_MAXWSCNT	= 00000400	G	
SGNSC_MINWSCNT	= 0000000A	G	
SGNSC_NPAGEDYN	= 00006800	G	
SGNSC_NPROCS	= 00000040	G	
SGNSC_PAGEDYN	= 00004000	G	
SGNSC_PHYPAGCNT	= 00001000	G	
SGNSC_SYSDWSCNT	= 00000028	G	
SGNSC_SYSVECPGS	= 00000005	G	
SGNSC_SYSWSCNT	= 00000060	G	
SWAP_EXT_PRIO	= 00000010		
SWAP_UIC	= 00010004		
SWPSA_KSTK	= 00000300	RG	02
SWPSK_KSTKSZ	= 000000A0	G	
SWPKSP	= 00000300	R	02
SWPPHD	= 000002A0	R	03
SYS_EXT_PRIO	= 00000010		

PDAT Psect synopsis

PROCESS DATA BASE

G 3

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1

Page 18
(1)

PHI
VO

! Psect synopsis !

PSECT NAME

ABS
\$ABSS
\$ \$\$000 - STACKS
\$ \$\$230

Allocation	PSECT No.	Attributes
000000000	(0.)	00 (0.) NOPIC USR
000000000	(0.)	01 (1.) NOPIC USR
00000300	(768.)	02 (2.) NOPIC USR
00000678	(1656.)	03 (3.) NOPIC USR

LCL	NOSHR	NOEXE	NORD	NOWRT	NOVEC	BYTE
LCL	NOSHR	EXE	RD	WRT	NOVEC	BYTE
LCL	NOSHR	EXE	RD	WRT	NOVEC	QUAD
LCL	NOSHR	EXE	RD	WRT	NOVEC	QUAD

+-----+ ! Performance indicators !

Phase

Initialization
Command processing
Pass 1
Symbol table sort
Pass 2
Symbol table output
Psect synopsis out
Cross-reference out
Assembler run total

Page faults	CPU Time	Elapsed Time
38	00:00:00.04	00:00:01.93
113	00:00:00.52	00:00:03.75
239	00:00:05.87	00:00:20.33
0	00:00:00.62	00:00:02.48
118	00:00:01.52	00:00:05.15
12	00:00:00.09	00:00:00.51
2	00:00:00.03	00:00:00.03
0	00:00:00.00	00:00:00.00
524	00:00:08.69	00:00:34.18

The working set limit was 1350 pages.

41207 bytes (81 pages) of virtual memory were used to buffer the intermediate code.

There were 30 pages of symbol table space allocated to hold 479 non-local and 0 local symbols.

392 source lines were read in Pass 1, producing 18 object records in Pass 2.
22 pages of virtual memory were used.

22 pages of virtual memory were used to define 16 macros.

Macro library statistics

Macro Library name

Macros defined

~~\$255\$DUA28:[SYS.OBJ]LIB.MLB;1
\$255\$DUA28:[SYSLIB]STARLET.MLB;2
TOTALS (all libraries)~~

616

524 GETS were required to define 9 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$;PRAT/OBJ=OBJ\$;PRAT MSRC\$;PRAT/UPDATE=(ENHS\$;PRAT)+EXECMS/LIB

0379 AH-BT13A-SE
VAX/VMS V4.0

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